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## ‘Substantial Portion’ of a Patent: Quantitative or Qualitative?

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# **‘Substantial Portion’ of a Patent: Quantitative or Qualitative?**

**By Matthew Rollin \***

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## I. INTRODUCTION

Imagine working, day-in and day-out, for decades on what you believe is a scientific breakthrough. After countless years of hard work, you finally achieve that breakthrough and you apply for a patent to protect your work. Now imagine that after you have been awarded your patent, you discover that someone is using your patent, but only using a single component of your multi-component patent. Unfortunately, you discover that because only one component of the multi-component patent is being used, you are not entitled to patent infringement protection. In *Life Technologies Corp. v. Promega Corp.*, the Supreme Court addressed that question. Does the use of a single component of a multi-component patent constitute patent infringement?<sup>1</sup> The Court held no; it does not constitute infringement.<sup>2</sup>

The United States Constitution is where patents originate from. Article I, Section Eight, Clause Eight states, "Congress shall have the power . . . to promote the progress of science and useful arts, by securing for limited times to authors or inventors the exclusive right to their respective writings and discoveries."<sup>3</sup> This is the Patent and Copyright Clause of the Constitution.<sup>4</sup> Reading the text of the Constitution, one sees that Congress is interested and intends to promote scientific and technological advancements. The rationale behind this seems rather simple. Congress will likely benefit both the people and the country as a whole by allowing authors to protect their work from others using or stealing it.<sup>5</sup> It provides incentive for people to continue to work and advance technology if they know they will reap the benefits of their time and resources.<sup>6</sup>

In *Life Technologies Corp.*, the plaintiff, Promega Corporation, filed a lawsuit against Life Technologies Corporation alleging patent

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<sup>1</sup> *Life Techs. Corp. v. Promega Corp.*, 137 S. Ct. 734, 737 (2017).

<sup>2</sup> *Id.*

<sup>3</sup> U.S. CONST. art. I, § 8, cl. 8.

<sup>4</sup> *Id.*

<sup>5</sup> MARTIN J. ADELMAN, RANDALL R. RADER & JOHN R. THOMAS, CASES AND MATERIALS ON PATENT LAW 1 (4th ed. 2014).

<sup>6</sup> *Id.*

infringement of the Tautz patent,<sup>7</sup> of which Promega was the exclusive licensee.<sup>8</sup> The Supreme Court overturned the appellate court's decision, holding that the phrase "'substantial portion' in 35 U.S.C. § 271(f)(1) has a quantitative, not a qualitative, meaning."<sup>9</sup> The Court further held that "§ 271(f)(1)<sup>10</sup> does not cover the supply of a single component of a multicomponent invention."<sup>11</sup> In that decision, the Supreme Court likely changed the future of patent infringement litigation where multi-component and complex patents are at issue.

An overview of patents is necessary to understand how patents work. The Constitution gives Congress the power to enact patent, copyright, and trademark statutes.<sup>12</sup> Congress wrote the Patent Act, which is outlined in title thirty-five of the United States Code.<sup>13</sup> Under the Act, Congress set forth all the requirements that are needed to register a patent, protect patents, define what constitutes as patent infringement, and set the remedies for patent infringement.<sup>14</sup>

This Article examines the Supreme Court's holding in *Life Technologies Corp.*, where the Court issued another requirement for patent infringement.<sup>15</sup> Part II of this Article examines the text of the Patent Act and the history behind it.<sup>16</sup> Part III further discusses the facts of *Life Technologies Corp.*, to give more relevant background facts and history.<sup>17</sup> Part IV focuses on the prior opinions of the case, including the district court's ruling, appellate court's decision, and the

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<sup>7</sup> *Promega Corp. v. Life Techs. Corp.*, 773 F.3d 1338, 1343 (Fed. Cir. 2014). "Claim [forty-two] of the Tautz patent recites: A kit for analyzing polymorphism in at least one locus in a DNA sample, comprising: [(j)a] at least one vessel containing a mixture of primers constituting between [one] and [fifty] of said primer pairs;[(j)b] a vessel containing a polymerizing enzyme suitable for performing a primer-directed poly-merase chain reaction; [(j)c] a vessel containing the deoxynucleotide triphosphates adenosine, guanine, cytosine and thymidine; [(j)d] a vessel containing a buffer solution for performing a poly-merase chain reaction; [(j)e] a vessel containing a template DNA comprising:[(j)i] a simple or cryptically simple nucleotide sequence having a repeat motif in length of [three] to [ten] nucleotides and [(j)ii] nucleotide sequences flanking said simple or cryptically simple nucleotide sequence that are effective for annealing at least one pair of said primes, for assaying positive performance of the method." *Id.*

<sup>8</sup> *Id.* at 1344.

<sup>9</sup> *Life Techs. Corp.*, 137 S.Ct. at 743.

<sup>10</sup> 35 U.S.C. § 271(f)(1). "Whoever without authority supplies or causes to be supplied in or from the United States all or a substantial portion of the components of a patented invention . . ." *Id.*

<sup>11</sup> *Life Techs. Corp.*, 137 S. Ct. at 743.

<sup>12</sup> U.S. CONST. art. I, § 8, cl. 8.

<sup>13</sup> 35 U.S.C. §§ 1–390 (2012).

<sup>14</sup> *Id.*

<sup>15</sup> *Life Techs. Corp.*, 137 S.Ct. at 737.

<sup>16</sup> See *infra* Section II.

<sup>17</sup> See *infra* Section III.

Supreme Court's decision.<sup>18</sup> Part V examines and concludes with the legal significance of *Life Technologies Corp.*, the impact that it will have on future cases, and how this ruling would have changed the outcome of previously cases.<sup>19</sup>

## II. PATENTS: THE HISTORY & TYPES

### A. *Historical Background of the Patent Acts*

Over the years, patent protection has taken many forms.<sup>20</sup> The Constitution gives Congress the power to grant patent protection.<sup>21</sup> Shortly after the Constitution was ratified, Congress introduced the Patent Act of 1790.<sup>22</sup> This was the first federal patent statute, also known as "A Bill to Promote the Progress of the Useful Arts."<sup>23</sup> Unfortunately, or fortunately, the "A Bill to Promote the Progress of the Useful Arts" was repealed and replaced only three years later in 1793.<sup>24</sup> In 1793, Congress established the Patent Act.<sup>25</sup> While most of the text remained the same, the new act included language that made obtaining a patent easier.<sup>26</sup> The previous Act allowed three people to grant patents; the Secretary of State, the Secretary of War and the Attorney General, and it required two of them to agree prior to approving the patent.<sup>27</sup> The new text under the Patent Act allowed the Secretary of State to grant patents without the need for the Secretary of War or Attorney General being involved.<sup>28</sup> Lastly, the 1793 Act set forth the patent protection timeframe of fourteen-years.<sup>29</sup>

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<sup>18</sup> See *infra* Section IV.

<sup>19</sup> See *infra* Section V.

<sup>20</sup> ADELMAN ET AL., *supra* note 5, at 8–10.

<sup>21</sup> U.S. CONST. art. I, § 8, cl. 8.

<sup>22</sup> *History of Patents: Everything you need to know*, UPCOUNSEL, <https://www.upcounsel.com/history-of-patents> (last visited Feb. 1, 2019).

<sup>23</sup> *A Bill to Promote the Progress of the Useful Arts, [1, December 1791]*, FOUNDERS ONLINE, <https://founders.archives.gov/documents/Jefferson/01-22-02-0322> (last visited Feb. 1, 2019).

<sup>24</sup> *Jefferson-Signed Patent Act of 1793*, SETH KALLER, INC. HIST. DOCUMENTS & LEGACY COLLECTION, <https://www.sethkaller.com/item/1169-22424.99-Jefferson-Signed-Patent-Act-of-1793> (last visited Feb. 1, 2019).

<sup>25</sup> *Id.*

<sup>26</sup> *Id.*

<sup>27</sup> *Id.*

<sup>28</sup> *Id.*

<sup>29</sup> *Patent Act of 1793, Ch. 11, 1 Stat. 318-323 (Feb. 21, 1793)*, IP MALL, [https://www.ipmall.info/sites/default/files/hosted\\_resources/lipa/patents/Patent\\_Act\\_of\\_1793.pdf](https://www.ipmall.info/sites/default/files/hosted_resources/lipa/patents/Patent_Act_of_1793.pdf) (last visited Feb. 1, 2019).

Previously, under the Patent Act of 1790, patents had a duration of fourteen-years, without the option to renew or extend.<sup>30</sup> Only after a patent had been approved was it given an expiration date.<sup>31</sup> Because of this, each patent's end date was decided individually, and the only requirement was for the timeframe not to exceed fourteen-years.<sup>32</sup> It was not until the Patent Act of 1793 that all patents were granted the same minimum and maximum of fourteen-years.<sup>33</sup>

The next major change in patent legislation occurred in 1836, roughly forty-three-years later.<sup>34</sup> The new legislation created the United States Patent Office.<sup>35</sup> Instead of the Secretary of State being responsible for the granting and denying of patents, the "Commissioner of Patents" was the chairman of the Patent Office, and took over these responsibilities.<sup>36</sup> The 1836 Act also allowed for the possibility of a seven-year extension on top of the fourteen-year protection period for a patent, provided that the Commissioner of Patent approved.<sup>37</sup> Lastly, the 1836 Act removed the language that prevented foreigners from filling for patents.<sup>38</sup> Now, both United States citizens and foreigners can apply for patents.<sup>39</sup>

There is one primary reason as to why, prior to 1836, foreigners and non-United States citizens could not apply for copyright or patent protection—because the country was a net-importer of innovations, inventions, and copyrighted material.<sup>40</sup> During the formation of the country, most residents of this country were not technically United States citizens, but they were incredibly smart and helped move society forward with their inventions.<sup>41</sup> At the time, Congress did not want to limit society's growth by allowing these inventors to protect their work, so they wrote into the Patent Acts that foreign-born or non-United

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<sup>30</sup> *Inventing in Congress: Patent Law Since 1790*, PIECES OF HIST., <https://prologue.blogs.archives.gov/2015/03/11/inventing-in-congress-patent-law-since-1790/> (last visited Feb. 1, 2019).

<sup>31</sup> *Patent Act of 1793*, *supra* note 29.

<sup>32</sup> *Id.*

<sup>33</sup> *Id.*

<sup>34</sup> *Patent Act of 1836*, Ch. 357, 5 Stat. 117 (July 4, 1836), PATENTLY-O, [https://patentlyo.com/media/docs/2008/03/Patent\\_Act\\_of\\_1836.pdf](https://patentlyo.com/media/docs/2008/03/Patent_Act_of_1836.pdf) (last visited Feb. 1, 2019).

<sup>35</sup> *Id.*

<sup>36</sup> *Id.*

<sup>37</sup> *Id.*

<sup>38</sup> *Id.*

<sup>39</sup> *Id.*

<sup>40</sup> *Patent History Materials Index – Brief History of the United States Patent Office from Its Foundation*, IP MALL, <https://www.ipmall.info/content/patent-history-materials-index-brief-history-united-states-patent-office-its-foundation-1790> (last visited Feb. 1, 2019).

<sup>41</sup> *Id.*

States citizens could not apply for patents and receive patent protection.<sup>42</sup> The United States did not become a technological advancements net-exporter until the mid-1800s, and then Congress believe it was fair to allow foreigners to protect their innovations and inventions.<sup>43</sup>

From 1836 to 1952, the Patent Act remained fairly unchanged.<sup>44</sup> In 1849, the Patent Office was moved from the State Department to the Department of the Interior, and in 1861, the patent protection time went from fourteen-years with a possibility of a seven-year extension, to seventeen-years with no extension.<sup>45</sup> The Patent Office was moved from the State Department to the Department of Interior as the result of lobbying from members of the Department of the Interior.<sup>46</sup> The members believed the Patent Office was more connected to the Department of the Interior's functions than the State Department.<sup>47</sup>

The Patent Office was moved again 1925.<sup>48</sup> This time, the Patent Office moved from the Department of the Interior to the Department of Commerce, where it remains today.<sup>49</sup> President Coolidge issued an executive order that moved the office to the Department of Commerce.<sup>50</sup> Congress's 1952 modifications changed the Act to closely resemble current patent laws.<sup>51</sup>

The biggest change in the 1952 amendment was that to receive a patent, one's invention must be new and nonobvious, which is located in 35 U.S.C. § 103.<sup>52</sup> Congress introduced the nonobvious clause to prevent monopolies based on common knowledge.<sup>53</sup> The nonobvious clause defines what cannot be patented:

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<sup>42</sup> *Id.*

<sup>43</sup> *Id.*

<sup>44</sup> *Id.*; 35 U.S.C. §§ 1–390 (2012).

<sup>45</sup> *Department of the Interior. Patent Office. (1849 - 1925) Organization Authority Record*, NAT'L ARCHIVES CATALOG, <https://catalog.archives.gov/id/10480220> (last visited Feb. 1, 2019).

<sup>46</sup> *Id.*

<sup>47</sup> *Id.*

<sup>48</sup> *Patent Term Calculator*, U.S. PAT. & TRADEMARK OFF., <https://www.uspto.gov/patent/laws-and-regulations/patent-term-calculator> (last visited Feb. 1, 2019).

<sup>49</sup> *Department of the Interior. Patent Office*, *supra* note 45.

<sup>50</sup> *Executive Order 10096*, FED. REG., <https://www.archives.gov/federal-register/codification/executive-order/10096.html> (last visited Feb. 1, 2019); *History of the United States Patent Office*, MYOUTBOX.NET, <http://www.myoutbox.net/popchep.htm> (last visited Feb. 1, 2019).

<sup>51</sup> 35 U.S.C. §§ 1–390 (2012).

<sup>52</sup> 35 U.S.C. § 103 (2012).

<sup>53</sup> ADELMAN ET AL., *supra* note 5.

In order for an invention to be patentable it must be new as defined in the patent law, which provides that an invention cannot be patented if:

‘(1) the claimed invention was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention’ or ‘(2) the claimed invention was described in a patent issued [by the U.S.] or in an application for patent published or deemed published [by the U.S.], in which the patent or application, as the case may be, names another inventor and was effectively filed before the effective filing date of the claimed invention.’<sup>54</sup>

Additionally, “[t]he subject matter sought to be patented must be sufficiently different from what has been used or described before that it may be said to be nonobvious to a person having ordinary skill in the area of technology related to the invention.”<sup>55</sup> This requirement is another stepping stone for the inventor to prove what they have created is new, and not something obvious that someone else could just stumble upon.

There were a couple of reasons behind the new and nonobvious clause of the 1952 amendment.<sup>56</sup> The Patent Office wanted to help people protect their inventions, but did not want to over-grant patents and limit the rest of the population.<sup>57</sup> If one can patent a color or recipe, it would grant the individual a monopoly over that object and prevent others from using it.<sup>58</sup> For example, there are only so many ways to make a chocolate chip cookie, so if one was able to patent a recipe for cookies with chocolate chips, it would prevent the rest of the world from making chocolate chip cookies.

In 2011, Congress passed the Leahy-Smith America Inventers Act (AIA), the greatest change in patent history.<sup>59</sup> Over the years, it was hotly debated whether patent protection should go to the first person that made the invention, or the first person that filed for a patent.<sup>60</sup> Before the AIA, the United States had been a first-to-invent system,

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<sup>54</sup> *General Information Concerning Patents*, U.S. PAT. & TRADEMARK OFF., <https://www.uspto.gov/patents-getting-started/general-information-concerning-patents> (last visited Feb. 1, 2019).

<sup>55</sup> *Id.*

<sup>56</sup> *Id.*

<sup>57</sup> *Id.*

<sup>58</sup> *Id.*

<sup>59</sup> *Leahy-Smith America Invents Act*, U.S. PAT. & TRADEMARK OFF. (Sept. 6, 2011), [https://www.uspto.gov/sites/default/files/aia\\_implementation/20110916-pub-1112-29.pdf](https://www.uspto.gov/sites/default/files/aia_implementation/20110916-pub-1112-29.pdf).

<sup>60</sup> Gene Quinn, *Did the Supreme Court Rule First to File is Unconstitutional?*, IP WATCHDOG, <https://www.ipwatchdog.com/2011/06/06/did-supreme-court-rule-first-to-file-is-unconstitutional/id=17605/> (last visited Feb. 1, 2019).



and with the change to the AIA, we finally transitioned into a first-to-file system, and we were the last country in the world to do so.<sup>61</sup>

To understand why America was the last country in the world to move to the first-to-file system, it is imperative to look at the text of Article I, Section Nine, Clause Two of the Constitution. As noted above, the Constitution states, "Congress shall have the power . . . to promote the progress of science and useful arts, by securing for limited times to authors or inventors the exclusive right to their respective writings and discoveries."<sup>62</sup> This is significant is because of the phrasing itself, specifically, the terms "inventor" and "discoveries." Legal scholars have interpreted that this first-to-file system may be unconstitutional, considering the power Congress has in accordance with the Constitution's language.<sup>63</sup> The first-to-file system concerned some legal scholars because anyone could file for a patent, even if they were not the original inventor of a patent, creating a due process issue.<sup>64</sup>

Much of the debate over the constitutionality of the first-to-file system was centered around the terminology of "first inventor to file."<sup>65</sup> Practically speaking, the first inventor files the majority of patents, so this is a nonissue for most inventions.<sup>66</sup> But, what if two inventors invent the same thing, but the second inventor files first?<sup>67</sup> However, there have not been legal challenges involving the system's constitutionality, so we will have to wait and see which position the courts will take.<sup>68</sup>

Under the AIA, one's patent is valid for twenty-years from the filing date, not from the approval date.<sup>69</sup> This is important to consider, because some patents, such as utility patents, take years to approve.<sup>70</sup>

Regarding patent duration, there are two competing interests to determine what is patentable.<sup>71</sup> The first is society's interest.<sup>72</sup> The Constitution and Congress created the Patent Act "to promote the

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<sup>61</sup> *Leahy-Smith America Invents Act*, *supra* note 59.

<sup>62</sup> U.S. CONST. art. I, § 8, cl. 8.

<sup>63</sup> Quinn, *supra* note 60.

<sup>64</sup> *Id.*

<sup>65</sup> *Id.*

<sup>66</sup> *Id.*

<sup>67</sup> *Id.*

<sup>68</sup> *Id.*

<sup>69</sup> *Patent Term Calculator*, *supra* note 48; *Leahy-Smith America Invents Act*, *supra* note 59.

<sup>70</sup> *How long does it take to get a Patent?*, ERICKSON L. GROUP, <http://www.ericksonlawgroup.com/law/patents/patentfaq/how-long-does-it-take-to-get-a-patent/> (last visited Feb. 1, 2019).

<sup>71</sup> ADELMAN ET AL., *supra* note 5, at 9–11.

<sup>72</sup> *Id.*

progress of science and useful arts.”<sup>73</sup> To do this, the Constitution grants limited-time monopolies to inventors that come forward with their scientific breakthrough.<sup>74</sup> This allows technology and innovations to spread far and wide, permitting society to progress into the future.<sup>75</sup> On the other side are the inventors and their interests.<sup>76</sup> These inventors spend day-in and day-out working to accomplish something new.<sup>77</sup> In return for their hard work, they want the exclusive right to use and sell their invention.<sup>78</sup> Congress increased patent duration to determine the balance between society’s interests and the inventor’s personal interest.<sup>79</sup>

### B. *Today’s Patent Act*

Today, 35 U.S.C. § 101 outlines patentable subject matter.<sup>80</sup> The statute states, “[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.”<sup>81</sup> This section’s key requirements are “useful process, machine, manufacture, or composition of matter.”<sup>82</sup> This language can be simplified into two categories: processes and stuff.<sup>83</sup> Processes are methods or functionalities.<sup>84</sup> The inventor would patent the way the invention works.<sup>85</sup> Stuff refers to the composition of matter, or the mechanical hardware itself.<sup>86</sup>

This then gives rise to what cannot be patented? There are three categories that cannot be patented: laws of nature, natural phenomena and abstract ideas.<sup>87</sup> The reasoning for why these items are not patent eligible is also quite simple. Laws of nature should not be patented, because everyone is required to use them.<sup>88</sup> One cannot patent gravity, it is just not possible. Second, natural phenomena are not patentable

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<sup>73</sup> U.S. CONST. art. I, § 8, cl. 8.

<sup>74</sup> ADELMAN ET AL., *supra* note 5.

<sup>75</sup> *Id.* at 11.

<sup>76</sup> *Id.*

<sup>77</sup> *Id.* at 12.

<sup>78</sup> *Id.*

<sup>79</sup> *Id.*

<sup>80</sup> 35 U.S.C. § 101 (2012).

<sup>81</sup> *Id.*

<sup>82</sup> ADELMAN ET AL., *supra* note 5.

<sup>83</sup> *Id.*

<sup>84</sup> *Id.*

<sup>85</sup> *Id.*

<sup>86</sup> *Id.*

<sup>87</sup> *Id.* at 102.

<sup>88</sup> *Id.*

because these things occur naturally in the world.<sup>89</sup> One should not be able to patent rocks. One can patent a process to mine rock, but not rock itself. Lastly, abstract ideas are not patentable either because an idea does not benefit or promote society's best interest.<sup>90</sup> Many people have ideas, but that does not mean they are feasible, and therefore the government should not grant them patent protection.<sup>91</sup>

35 U.S.C. § 102 outlines the novelty requirement for one to receive a patent.<sup>92</sup> Section 102 is lengthy and complicated, but it boils down to two main sections. Subsection (a) states that a person shall be entitled to a patent unless, "the claimed invention was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention."<sup>93</sup> Essentially, this boils down to one thing; if the invention is available to the public or otherwise known, it will not be eligible for a patent.<sup>94</sup> The second section, or subsection (b), is the exception to the above rule. This states that, "disclosures made one year or less before the effective filing date of the claimed invention shall not be prior art to the claimed invention under subsection (a)(1)."<sup>95</sup> This means that if you apply for a patent application within one year of the invention being in public use or otherwise available, it will not be considered as prior art against the inventor and a patent application will not be rejected based on novelty or prior art.<sup>96</sup>

35 U.S.C. § 111 outlines the requirements to register a patent.<sup>97</sup> This section states, "[a]n application for patent shall be made, or authorized to be made, by the inventor, except as otherwise provided in this title, in writing to the Director."<sup>98</sup> The key takeaway from this statute is that the application must be in writing.<sup>99</sup> This is important for the reasons noted in 35 U.S.C. § 111(a)(2), which outlines the further written requirements for the application.<sup>100</sup> This section states that the specifications, drawing, and oath of the requested patent must be in writing and attached to the application.<sup>101</sup>

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<sup>89</sup> *Id.*

<sup>90</sup> *Id.*

<sup>91</sup> *Id.*

<sup>92</sup> 35 U.S.C. § 102 (2012).

<sup>93</sup> *Id.*

<sup>94</sup> *Id.*

<sup>95</sup> *Id.*

<sup>96</sup> *Id.*

<sup>97</sup> 35 U.S.C. § 111 (2012).

<sup>98</sup> *Id.*

<sup>99</sup> *Id.*

<sup>100</sup> *Id.*

<sup>101</sup> *Id.*

Subsection (a), subdivision three of 35 U.S.C. § 111 describes the fee process stating, “[t]he application shall be accompanied by the fee required by law.”<sup>102</sup> The subsection continues to explain that “upon failure to submit the fee . . . the application shall be regarded as abandoned.”<sup>103</sup> Although this section may seem unnecessary, it shows how important each requirement of the Title 35 of the U.S.C. actually is. There are specific steps that must be taken for one to get a patent, and by skipping a step or missing a step entirely can result in catastrophic repercussions on an inventor trying to get a patent.<sup>104</sup> If a patent is abandoned because of a missed filing fee, someone else could file the patent first and the original inventor loses their rights.

The next section, 35 U.S.C. § 112, is as important as the new and nonobvious clause.<sup>105</sup> This section covers the enablement requirement.<sup>106</sup>

The specification shall contain a written description of the invention, and of the matter and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same . . .<sup>107</sup>

The enablement requirement pairs with the writing requirement in 35 U.S.C. § 111.<sup>108</sup> For the reasons outlined above, by giving as much detail as possible, patenting filling allows someone down the line to recreate the patent.<sup>109</sup> The ability to replicate the patented work is paramount, otherwise patents would be granting limited monopolies with no exchange of information.<sup>110</sup>

It is important the inventor submit a detailed writing of the invention.<sup>111</sup> This returns to the text and meaning of Article I, Section Eight, Clause Eight of the Constitution.<sup>112</sup> The Constitution provides Congress the power “to promote the progress of science and useful arts.”<sup>113</sup> The government grants patents to incentivize inventors to disclose their invention to the world, which promotes innovation and benefits society as a whole.<sup>114</sup> In exchange for disclosing their

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<sup>102</sup> 35 U.S.C. § 111 (2012).

<sup>103</sup> *Id.*

<sup>104</sup> *General Information Concerning Patents*, *supra* note 54.

<sup>105</sup> 35 U.S.C. § 112 (2012).

<sup>106</sup> *Id.*

<sup>107</sup> 35 U.S.C. § 112(a) (2012).

<sup>108</sup> *Id.*

<sup>109</sup> *Id.*

<sup>110</sup> *Id.*

<sup>111</sup> *Id.*

<sup>112</sup> U.S. CONST. art. I, § 8, cl.

<sup>113</sup> *Id.*

<sup>114</sup> ADELMAN ET AL., *supra* note 5.

invention, the government gives the inventor the “exclusive right to their respective writings and discoveries” for a period of time.<sup>115</sup>

So, what does this have to do with the patent application needing a writing? It is to allow people familiar with the field (also known as a PHOSITA—person having ordinary skill in the art) the ability to recreate the invention once the exclusive period has expired.<sup>116</sup> Innovation for the future is not promoted when one receives a patent but does not describe in writing the design or functionality of the item.<sup>117</sup>

35 U.S.C. § 271 covers patent infringement.<sup>118</sup> In this section, there are multiple subsections that cover different patent infringement types.<sup>119</sup> Subsection (a) states, “whoever without authority makes, uses, offers to sell, or sells any patented invention, within the United States, or imports into the United States any patented invention during the term of the patent therefor, infringes the patent.”<sup>120</sup> This subsection is critical because it offers blanket protection for the inventor, protecting them from someone making, using, or selling the patented invention within the United States.<sup>121</sup> Furthermore, 35 U.S.C. § 271(c) introduces the contributory infringer concept to prove more protection for the inventor:

Whoever offers to sell or sells within the United States or imports into the United States a component of a patented machine, manufacture, combination, or composition, or a material or apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use, shall be liable as a contributory infringer.<sup>122</sup>

Under 35 U.S.C. § 271, there are two more important definitions for patent infringement, and these are the statutes directly related to the decision of the Supreme Court in *Life Technologies Corp. v. Promega Corp.*, § 271(f)(1) and § 271 (f)(2).<sup>123</sup> Subsection (f), subdivision one states:

Whoever without authority supplies or causes to be supplied in or from the United States all or a substantial portion of the components

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<sup>115</sup> U.S. CONST. art. I, § 8, cl. 8.

<sup>116</sup> ADELMAN ET AL., *supra* note 5.

<sup>117</sup> *Id.*

<sup>118</sup> 35 U.S.C. § 271 (2012).

<sup>119</sup> *Id.*

<sup>120</sup> *Id.*

<sup>121</sup> *Id.*

<sup>122</sup> *Id.*

<sup>123</sup> *Life Techs. Corp.*, 137 S.Ct. at 740; 35 U.S.C. § 271 (2012).

of a patented invention, where such components are uncombined in whole or in part, in such manner as to actively induce the combination of such components outside of the United States in a manner that would infringe the patent if such combination occurred within the United States, shall be liable as an infringer.<sup>124</sup>

The language of this subsection mentions “all or a substantial portion of the components of a patented invention.”<sup>125</sup> This language was the issue in *Life Technologies Corp.*, because the Supreme Court determined whether this language meant the patent infringement test was qualitative or quantitative.<sup>126</sup> The Supreme Court defined quantitative as the number of components needed to be infringed to invoke liability on the infringer.<sup>127</sup> By contrast, a qualitative test focuses on the importance of the individual components, rather than a number of components needing to be infringed.<sup>128</sup> Lastly, there is subsection (f), subdivision two that states:

Whoever without authority supplies or causes to be supplied in or from the United States any component of a patented invention that is especially made or especially adapted for use in the invention and not a staple article or commodity of commerce suitable for substantial noninfringing use, where such component is uncombined in whole or in part, knowing that such component is so made or adapted and intending that such component will be combined outside of the United States in a manner that would infringe the patent if such combination occurred within the United States, shall be liable as an infringer.<sup>129</sup>

During its decision, the Supreme Court carefully examined the language in this subsection to determine the true intent and meaning behind subsection (f), subdivision one.<sup>130</sup> The language that Court examines is “where such component.”<sup>131</sup> Looking at the text of this subsection, the language is very clear that it is referring to a “component,” which is singular. In comparison, subdivision one,

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<sup>124</sup> 35 U.S.C. § 271 (2012).

<sup>125</sup> *Id.*

<sup>126</sup> *Life Techs. Corp.*, 137 S.Ct. at 740.

<sup>127</sup> *Id.* Merriam-Webster defines “quantitative” as “relating to, measure, or measured by the quantity of something rather than its quality.” *Quantitative*, MERRIAM-WEBSTER, <https://www.merriam-webster.com/dictionary/quantitative> (last visited Feb. 1, 2019).

<sup>128</sup> *Life Techs. Corp.*, 137 S.Ct. at 740. Merriam-Webster defines “qualitative” as relating to, measuring, or measured by the quality rather than its quantity.” *Qualitative*, MERRIAM-WEBSTER, <https://www.merriam-webster.com/dictionary/qualitative> (last visited Feb. 1, 2019).

<sup>129</sup> 35 U.S.C. § 271 (2012).

<sup>130</sup> *Id.*

<sup>131</sup> *Life Techs. Corp.*, 137 S.Ct. at 740.

which mentions “all or substantial portion of components,” has a plural aspect.

Continuing to look at 35 U.S.C., we reach § 281, which outlines the remedies available for the patent holder if they are successful in a patent infringement suit.<sup>132</sup> “In the United States, there are several forms of relief available to the patent owner who has successfully proven patent infringement.”<sup>133</sup> Section 283 outlines injunctive relief from patent infringers.<sup>134</sup> In this section, the text is straight-forward, permitting the court overseeing the case the ability to grant injunctions to “prevent the violation of any right secured by patent.”<sup>135</sup> Something notable about the language in this section is the court set the terms, “as the court deems reasonable.”<sup>136</sup>

Section 284 outlines how monetary damages are addressed.<sup>137</sup> “[T]he court shall award the claimant damages adequate to compensate for the infringement . . . .”<sup>138</sup> Although § 284 does not offer any guidance on how adequate damages shall be awarded to the prevailing party, two theories on damage calculations guide the courts.<sup>139</sup> The first theory is called reasonable royalty.<sup>140</sup> A reasonable royalty is the baseline floor from one can recover.<sup>141</sup> To determine the reasonable royalty, the court will look to the field of the patent.<sup>142</sup> Because this is a baseline floor, a successful party in a patent infringement suit will not receive less than this amount as compensation.<sup>143</sup> The second theory is lost profits. Under this theory, the owner of the patent will receive the baseline floor, or the reasonable royalty, and then can receive additional damages on top of this, known as lost profits.<sup>144</sup> Essentially, lost profits amount to what the patent owner lost in the market place because the patent infringer sold a product that violated the patent.<sup>145</sup>

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<sup>132</sup> 35 U.S.C. § 281 (2012).

<sup>133</sup> Richard V. Westerhoff, *Patent Infringement and Relief for the Patent Owner*, 44 JOM 1, 46 (1992).

<sup>134</sup> 35 U.S.C. § 283 (2012).

<sup>135</sup> *Id.*

<sup>136</sup> *Id.*

<sup>137</sup> 35 U.S.C. § 284 (2012).

<sup>138</sup> *Id.*

<sup>139</sup> *Patent Damages Primer*, FISH & RICHARDSON, <https://www.fr.com/services/litigation/patent/patent-damages/patent-damages-primer/> (last visited Feb. 1, 2019).

<sup>140</sup> *Id.*

<sup>141</sup> *Id.*

<sup>142</sup> *Id.*

<sup>143</sup> *Id.*

<sup>144</sup> *Id.*

<sup>145</sup> *Id.*

“When the damages are not found by a jury, the court shall assess them. In either event the court may increase the damages up to three times the amount found or assessed.”<sup>146</sup> Lastly, “[t]he court may receive expert testimony as an aid to the determination of damages . . . .”<sup>147</sup> Similar to § 283, it is left to the court to determine the value of the infringement.<sup>148</sup> The final sections mentions that the court can seek aid from expert testimony to determine a fair value and prevent discrepancy among different courts.<sup>149</sup>

Section 285 guides the court on how to handle attorney fees.<sup>150</sup> Typically, under the American system, each party pays attorney’s fees,<sup>151</sup> but under § 285 in exceptional cases the court can order the losing party to pay reasonable attorney fees to the prevailing party.<sup>152</sup> Lastly, § 286 deals with time limitations and the statute of limitations for patent infringement cases.<sup>153</sup> This section clearly lays out that, “no recovery shall be had for any infringement committed more than six[-]years prior to the filing of the complaint or counterclaim for the infringement in the action.”<sup>154</sup> That means the statute of limitations is six-years for a patent claim when receiving monetary damages.<sup>155</sup> There is no statute of limitations for filing a patent lawsuit.<sup>156</sup> The plaintiff just cannot collect on damages for something older than six-years.<sup>157</sup>

Due to the high discretion of the court in § 283 and 284, the issue of venue shopping emerged.<sup>158</sup> Although not the specific topic of this article, a quick look at the history of patent venue shopping will offer guidance in understanding the current patent venue laws.<sup>159</sup>

Prior to the Supreme Court ruling in *TC Heartland LLC. v. Kraft Foods Group Brands LLC.*, one could file a patent infringement lawsuit “where[ver] the defendant [was] subject to personal jurisdiction.”<sup>160</sup>

<sup>146</sup> 35 U.S.C. § 284 (2012).

<sup>147</sup> *Id.*

<sup>148</sup> 35 U.S.C. §§ 283-284 (2012).

<sup>149</sup> 35 U.S.C. § 284 (2012).

<sup>150</sup> 35 U.S.C. § 285 (2012).

<sup>151</sup> *Attorney Fees: Does the losing side have to pay?*, NOLO, <https://www.nolo.com/legal-encyclopedia/attorney-fees-does-losing-side-30337.html> (last visited Feb. 1, 2019).

<sup>152</sup> 35 U.S.C. § 285 (2012).

<sup>153</sup> 35 U.S.C. § 286 (2012).

<sup>154</sup> *Id.*

<sup>155</sup> *Id.*

<sup>156</sup> *Id.*

<sup>157</sup> *Id.*

<sup>158</sup> 35 U.S.C. §§ 283-284 (2012).

<sup>159</sup> *Id.*

<sup>160</sup> Keith Grady, *TC Heartland Update: Decision Changed the law on Venue* (Dec. 18, 2017), <https://www.ipwatchdog.com/2017/12/18/tc-heartland-update->



This made it incredibly easy for corporations to venue shop for potential favorable verdicts.<sup>161</sup>

One of the most common places for patent lawsuits to be filed was in the Eastern District of Texas.<sup>162</sup> This particular district of Texas became notorious for being pro-plaintiff in patent infringement cases, which allowed plaintiffs to generally know of the case's outcome in that district..<sup>163</sup> It was not until 2017, when the Supreme Court issued its unanimous ruling in *TC Heartland LLC.*, that restricted venue shopping.<sup>164</sup> This new ruling limited patent infringement suits to two places, "where the defendant resides, or where the defendant commits an act of infringement and has a regular and established place of business."<sup>165</sup>

Because of the discretionary language of § 283 and 284, this will prevent plaintiffs from selecting pro-plaintiff jurisdictions and will likely lead to a fairer outcome for defendants, knowing they are not forced into a pro-plaintiff jurisdiction.<sup>166</sup> Additionally, this also prevents award discrepancies from different courts. If a court is pro-plaintiff, the plaintiff is not only likely to win more often, but the judgment is likely to be larger.<sup>167</sup>

### C. Types of Patents

There are three different types of patents; utility patents, design patents, and plant patents.<sup>168</sup> The most common type of patent is known as a utility patent.<sup>169</sup> Overall, a utility patent is likely to protect an inventor's invention better than a design patent.<sup>170</sup> Utility patents offer protection of "the functional aspects of an invention."<sup>171</sup> This means that the functionality of the invention itself is patented - the

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changed-law-venue/id=91145/; *TC Heartland, LLC. v. Kraft Foods Group Brands, LLC.*, 137 S.Ct. 1514 (2017).

<sup>161</sup> Grady, *supra* note 161.

<sup>162</sup> *Id.*

<sup>163</sup> *Id.*

<sup>164</sup> *TC Heartland, LLC.*, 137 S.Ct. at 1514.

<sup>165</sup> *Id.*

<sup>166</sup> 35 U.S.C. §§ 283-284 (2012).

<sup>167</sup> *Patent Damages Primer*, *supra* note 140.

<sup>168</sup> *Two Main Patent Types: Utility and Design*, NEUSTEL, <https://www.neustel.com/patents/utility-vs-design/> (last visited Feb. 1, 2019); *Type of Patents*, FIND L., <https://smallbusiness.findlaw.com/intellectual-property/types-of-patents.html> (last visited Feb. 1, 2019).

<sup>169</sup> *Two Main Patent Types*, *supra* note 169.

<sup>170</sup> *Id.*

<sup>171</sup> *Id.*

process of how the invention works.<sup>172</sup> For example, the case at hand here, *Life Technologies v. Promega*, dealt with a utility patent.<sup>173</sup> Without the use of the Taq polymerase, the genetic kit would be unable to do its job, so there is a functionality aspect.<sup>174</sup> Utility patents also offer broader protection, which makes it more “difficult for a competing product to avoid patent infringement.”<sup>175</sup> A utility patent provides broader protection because a single utility patent is “capable of protecting many different variations of a product.”<sup>176</sup> This means an inventor can have one patent that conveys different patentable functionality aspects all bundled up into one patent, which makes it extremely convenient for the patent holder.<sup>177</sup>

However, there are downsides to utility patents.<sup>178</sup> First, they are more expensive to procure in comparison to a design patent.<sup>179</sup> Second, it takes longer for a utility patent to be approved and registered.<sup>180</sup> Lastly, it does not protect design aspects of a patent (the look of the invention); it only covers the functionality aspect.<sup>181</sup>

The next type of patent, a design patent, protects the appearance of an invention or product.<sup>182</sup> A recent and well-known example of this is at the heart of the *Apple v. Samsung* patent infringement lawsuit.<sup>183</sup> Although the legal battle is still going on today,<sup>184</sup> the core of the issue is whether Samsung infringed on Apple’s design patent for its Samsung Galaxy devices, copying the design of the iPhone.<sup>185</sup> The benefits of filing a design patent over a utility patent are quite simple. First, it is cheaper.<sup>186</sup> Second, it is faster from filing to approval, it usually takes less than two-years, compared to utility patents which can take over

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<sup>172</sup> *Id.*

<sup>173</sup> *Promega Corp.*, 773 F.3d at 1342.

<sup>174</sup> *Id.*

<sup>175</sup> *Attorney Fees: Does the losing side have to pay?*, *supra* note 146.

<sup>176</sup> *Id.*

<sup>177</sup> *Id.*

<sup>178</sup> *Id.*

<sup>179</sup> *Id.*

<sup>180</sup> *Id.*

<sup>181</sup> *Id.*

<sup>182</sup> *Id.*

<sup>183</sup> *Apple Inc. v. Samsung Elecs. Co., LTD.*, 735 F.3d 1352, 1355 (Fed. Cir. 2013).

<sup>184</sup> Ronald Mann, *Opinion analysis, Justices tread narrow path in rejecting \$400 million award for Samsung’s infringement of Apple’s cellphone design patents*, SCOTUSblog (Dec. 6, 2016), <https://www.scotusblog.com/2016/12/opinion-analysis-justices-tread-narrow-path-in-rejecting-400-million-award-for-samsungs-infringement-of-apples-cellphone-design-patents/#more-249662>.

<sup>185</sup> *Apple Inc.*, 735 F.3d at 1355.

<sup>186</sup> *Two Main Patent Types Utility and Design*, *supra* note 169.

three-years.<sup>187</sup> Lastly, it allows for the main “feature” of a product to be patented if that feature is based on design rather than functionality.<sup>188</sup>

A well-known example of a design patent is the design patent at issue in the *Apple v. Samsung* case.<sup>189</sup> In that case, Apple had a design patent on the curvature of the edges of its iPhones.<sup>190</sup> Samsung was found liable for infringing on this design patent with its Samsung Galaxy phones, because the Galaxy had a similar curved phone-edge design.<sup>191</sup>

Unfortunately, these positives come with a couple of drawbacks. As mentioned just above, design patents patent the design, not the functionality.<sup>192</sup> This means, someone can patent or invent something that functions exactly the same way but looks different, and that person would not be liable for patent infringement.<sup>193</sup> This leads us to the second drawback—design patents can be “designed around.”<sup>194</sup> Because a subsequent inventor only has to worry about the design of the product and not how it operates or functions, it is typically easy to find another design that offers the same functionality.<sup>195</sup>

Fortunately for inventors, one is not limited to just filing for a utility patent or a design patent.<sup>196</sup> If a product or invention encompasses patentable functional aspects and yet a unique design, the inventor can file for both a utility patent and design patent.<sup>197</sup>

A third, lesser-known type of patent that is becoming more and more popular as our scientific progress continues is known as a plant patent.<sup>198</sup> Plant patents have very specific requirements, such as a person can only obtain a plant patent if he or she has been able to asexually reproduce the plant.<sup>199</sup> This means that the plant was reproduced by any other mean besides seeds.<sup>200</sup> Additionally, the plant must be new and distinctive.<sup>201</sup> After receiving a plant patent, the

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<sup>187</sup> *Id.*

<sup>188</sup> *Id.*

<sup>189</sup> *Apple Inc.*, 735 F.3d at 1355.

<sup>190</sup> *Id.*

<sup>191</sup> *Id.*

<sup>192</sup> *Two Main Patent Types: Utility and Design*, *supra* note 169.

<sup>193</sup> *Id.*

<sup>194</sup> *Id.*

<sup>195</sup> *Id.*

<sup>196</sup> *Id.*

<sup>197</sup> *Id.*

<sup>198</sup> *Id.*

<sup>199</sup> *Id.*

<sup>200</sup> *Id.*

<sup>201</sup> *Id.*

patent holder has the exclusive right to prevent others from asexually reproducing the plant or selling the plant.<sup>202</sup>

### III. LIFE TECHNOLOGIES CORP. V. PROMEGA CORP.

As one can imagine, patent cases can be incredibly complex, drawn-out, and sometimes even boring. Due to the technicalities of such cases, it can be hard to understand what the issue is. Although this case has a lot of complicated facts and terminology, because it involves the process for DNA replication, the case is actually rather simple when one parse out the two different issues.<sup>203</sup> The first issue concerns the cross-license between Promega and Life Technologies, and the second issue is about infringement of a specific component of the Tautz patent.<sup>204</sup>

The primary issue in this case revolves around the use of a single component: Taq polymerase.<sup>205</sup> To better understand the importance and functionality of Taq polymerase, a quick lesson on how DNA replication works might be helpful. One must unzip the double helix strand of the DNA to begin DNA replication.<sup>206</sup> To do this, one uses an enzyme called helicase, which unzips the double helix DNA strand.<sup>207</sup> Now that the DNA is in single strand form, DNA polymerase copies the single strands.<sup>208</sup> This is where Taq polymerase comes in. Taq polymerase is a form of DNA polymerase, but with a crucial distinction; it works in very high temperatures.<sup>209</sup> Standard DNA polymerase is unable to withstand some temperatures that may be required for DNA replication, meanwhile Taq polymerase can.<sup>210</sup> The name Taq polymerase comes from a type of bacteria found in hot springs which can withstand extremely hot environments.<sup>211</sup>

Promega Corporation sued Life Technologies for patent infringement.<sup>212</sup> Promega was the owner of four patents, known as the

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<sup>202</sup> *Id.*

<sup>203</sup> *Promega Corp.*, 773 F.3d at 1341.

<sup>204</sup> *Id.*

<sup>205</sup> *Id.* at 1351.

<sup>206</sup> *Cells can replicate their DNA precisely*, SCITABLE BY NATURE EDUCATION, <https://www.nature.com/scitable/topicpage/cells-can-replicate-their-dna-precisely-6524830> (last visited Feb. 1, 2019).

<sup>207</sup> *Id.*

<sup>208</sup> *Id.*

<sup>209</sup> J. Dianne Dotson, *The Role of Taq Polymerase in PCR*, SCIENCING, <https://sciencing.com/role-taq-polymerase-pcr-7298417.html> (last visited Feb. 1, 2019).

<sup>210</sup> *Id.*

<sup>211</sup> *Id.*

<sup>212</sup> *Promega Corp.*, 773 F.3d at 1344.

Promega Patents.<sup>213</sup> Promega acquired these four patents between 1996 and 2002.<sup>214</sup> Additionally, they had the exclusive rights of the Tautz patent—in other words, only they can use the patent.<sup>215</sup> In 2006, Promega and Life Technologies entered into a licensing agreement, which allowed Life Technologies to use the Tautz patent in limited circumstances.<sup>216</sup> Promega agreed that Life Technologies would be permitted to use the patent in “Forensic and Human Identity Applications.”<sup>217</sup>

The terms of the cross-license allowed Life Technologies to use the patent in “live” or “field-of-use” applications.<sup>218</sup> It turned out that Life Technologies used the patented technology for forensic research, education, and training, which Promega deemed to be outside the license.<sup>219</sup> Ultimately, the district court held that Life Technologies use of the Tautz patent was against the spirit of the cross-license.<sup>220</sup> The appellate court agreed that Life Technologies had violated the cross-license, but because the court had found that four of the five patents used were unenforceable, the verdict was invalid.<sup>221</sup>

As previously discussed, for something to be patentable, it is required to comply with the new and nonobvious clause of the 1952 Patent Act.<sup>222</sup> To determine validity of the Promega patents, the appellate court first turned to the enablement requirement set forth in 35 U.S.C. § 112, which states:

The specification shall contain a written description of the invention, and the matter and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same.<sup>223</sup>

The reasoning behind the enablement requirement is rather simple; it “ensures that ‘the public knowledge is enriched by the patent

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<sup>213</sup> *Id.*

<sup>214</sup> *Multiplex Amplification of Short Tandem Repeat Loci*, USPTO PATENT TEXT, <http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO1&Sect2=HITOFF&d=PALL&p=1&u=%2Fnetacgi%2FPTO%2Fsrchnum.htm&r=1&f=G&l=50&s1=5843660.PN.&OS=PN/5843660&RS=PN/5843660> (last visited Feb. 1, 2019).

<sup>215</sup> *Promega Corp.*, 773 F.3d at 1344.

<sup>216</sup> *Id.*

<sup>217</sup> *Id.*

<sup>218</sup> *Id.*

<sup>219</sup> *Id.*

<sup>220</sup> *Id.* at 1345.

<sup>221</sup> *Id.*

<sup>222</sup> *General Information Concerning Patents*, *supra* note 54.

<sup>223</sup> 35 U.S.C. § 112 (2012).

specification . . . .”<sup>224</sup> The court determined the details of Promega’s patents led to “unpredictable” results.<sup>225</sup> Promega argued that a combination of three loci was patentable when previously only a combination of two had been patented.<sup>226</sup> In rejecting this argument, the court determined that because of the unpredictable nature of the results, someone trying to replicate Promega’s process would have to spend endless hour experimenting to possibly replicate the results..<sup>227</sup> The court determined that because of this “unpredictable art” the four “Promega patents were invalid for the lack of enablement.”<sup>228</sup>

Moving onto the second issue, the Tautz patent was a multicomponent patent, containing five different components and only one portion it was infringed by Life Technologies.<sup>229</sup> The patent covered a DNA replication kit, which contained five different components.<sup>230</sup> The United Kingdom manufactured four out of the five components, but the United States manufactured the fifth component and sent to the United Kingdom for final assembly.<sup>231</sup> The Taq polymerase was the one component that was manufactured in the United States and then shipped to the United Kingdom.<sup>232</sup>

Promega alleged Life Technologies triggered liability under 35 U.S.C. § 271(f)(1) because one of the manufactured components came from the United States.<sup>233</sup> 35 U.S.C. § 271(f)(1) clearly states that:

Whoever without authority supplies or causes to be supplied in or from the United States all or a substantial portion of the components of a patented invention, where such components are uncombined in whole or in part, in such manner as to actively induce the combination of such components outside of the United States in a manner that would infringe the patent if such combination occurred within the United States, shall be liable as an infringer.<sup>234</sup>

Promega’s argument was simple—that this was a qualitative test and not a quantitative test.<sup>235</sup> Promega argued that the one component that Life Technologies shipped from the United States was the main component of the DNA replication kit, and without that one component

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<sup>224</sup> *Promega Corp.*, 773 F.3d at 1347.

<sup>225</sup> *Id.*

<sup>226</sup> *Id.*

<sup>227</sup> *Id.* at 1348.

<sup>228</sup> *Id.* at 1350.

<sup>229</sup> *Id.*

<sup>230</sup> *Id.*

<sup>231</sup> *Id.* at 1354.

<sup>232</sup> *Id.*

<sup>233</sup> *Id.*

<sup>234</sup> 35 U.S.C. § 271 (2012).

<sup>235</sup> *Promega Corp.*, 773 F.3d at 1355.

the kit would be worthless.<sup>236</sup> Essentially, this one component of the DNA replication kit was so vital, that without this component the kit itself would cease to exist.<sup>237</sup>

In its defense, Life Technologies argued that the language of the statute clearly mentioned “all or a substantial portion of the ‘components.’”<sup>238</sup> Life Technologies argued that the text mentions components, which are plural, meaning more than one component needs to be infringed to constitute infringement of the patent as a whole.<sup>239</sup>

The appellate court held in favor of Promega that “nothing in the ordinary meaning of ‘portion’ suggests that it necessarily requires a certain quantity or that a single component cannot be a ‘portion’ of a multicomponent invention.”<sup>240</sup> The appellate court found Promega’s argument very persuasive because without that one component, the entire kit as a whole would fail.<sup>241</sup> The court believed that a single component was enough to establish infringement of a multicomponent patent.<sup>242</sup>

Life Technologies appealed to the Supreme Court of the United States who granted certiorari.<sup>243</sup> The Supreme Court spent considerable time on the analysis from the appellate court, including the arguments from both sides with regards to 35 U.S.C. § 271(f)(1) being a quantitative or a qualitative test.<sup>244</sup>

The Supreme Court looked directly at the text of the statute, looking for the ordinary meaning of the words “all” and “portion.”<sup>245</sup> Referring to the dictionary definition of the terms, the Supreme Court found the ordinary meaning of the word “all” meant “the entire quantity, without reference to relative importance.”<sup>246</sup> Next, the Court turned to “portion,” and determined it “refers to some quantity less than all.”<sup>247</sup> Then the Supreme Court focused “substantial.”<sup>248</sup> In the context of § 271(f)(1), the Court came to the conclusion that “a

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<sup>236</sup> *Id.*

<sup>237</sup> *Id.*

<sup>238</sup> *Id.*

<sup>239</sup> *Id.*

<sup>240</sup> *Id.* at 1353.

<sup>241</sup> *Id.*

<sup>242</sup> *Id.*

<sup>243</sup> *Life Techs. Corp.*, 137 S.Ct. at 738.

<sup>244</sup> *Id.* at 740.

<sup>245</sup> *Id.*

<sup>246</sup> *Id.*

<sup>247</sup> *Id.*

<sup>248</sup> *Id.*

quantitative interpretation hews most closely to the text of the statute and provides an administrable construction.”<sup>249</sup>

The Court came to its conclusion after considering both subdivision one and two. The Court held “[r]eading § 271(f)(1) to cover any single component would not only leave little room for § 271(f)(2), but would also undermine § 271(f)(2)’s express reference to a single component ‘especially made or especially adapted for use in the invention.’”<sup>250</sup> Additionally, the Court concluded “§ 271(f)(1) prohibits the supply of components, plural, gives each subsection its unique application” and that “one component does not constitute ‘all or a substantial portion’ of a multicomponent invention under § 271(f)(1).”<sup>251</sup>

The Supreme Court’s conclusion was that “the phrase ‘substantial portion’ in 35 U.S.C. § 271(f)(1) has a quantitative meaning.”<sup>252</sup> The Court further held that “§ 271(f)(1) does not cover the supply of a single component of a multicomponent invention.”<sup>253</sup>

### III. ANALYSIS OF THE *LIFE TECHNOLOGIES* RULING

#### A. *District Court*

The district court was tasked with ruling on two different issues.<sup>254</sup> First, whether or not Life Technologies breached the licensing agreement by using the testing kits outside of educational use and second, whether the Promega patents were valid.<sup>255</sup>

With respect to the first issue, the district court found that police officers using the testing kit in forensic investigations violated the agreement because it was not an educational use.<sup>256</sup> As to the second issue, the district court granted summary judgment in favor of Promega, dismissing Life Technologies’ argument that the Promega patents were invalid for lack of enablement and lack of new and nonobvious requirements.<sup>257</sup>

After the district court’s ruling, the case went to the jury who awarded damages to Promega for the infringement.<sup>258</sup> At this point the court brought up 35 U.S.C. §§ 271(f)(1) and 271(f)(2).<sup>259</sup> The district

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<sup>249</sup> *Id.*

<sup>250</sup> *Id.* at 742.

<sup>251</sup> *Id.*

<sup>252</sup> *Id.*

<sup>253</sup> *Id.*

<sup>254</sup> *Promega Corp.*, 773 F.3d at 1344.

<sup>255</sup> *Id.*

<sup>256</sup> *Id.*

<sup>257</sup> *Id.*

<sup>258</sup> *Id.*

<sup>259</sup> *Id.*



court ordered the jury to consider the statutes for determining Life Technologies' liability.<sup>260</sup> The district court granted Life Technologies' motion for judgment as a matter of law stating that "Promega failed to present sufficient evidence to sustain a jury verdict under . . . § 271(f)(1)."<sup>261</sup> The court vacated the infringement finding and both parties appealed.<sup>262</sup>

### B. *Appellate Court*

Like the district court, the appellate court had to address the same two issues.<sup>263</sup> When analyzing the cross-license, the court determined that Promega's four patents were invalid because of a lack of establishment and it was not new and nonobvious.<sup>264</sup> But the second issue, patent infringement of a single component, was the most important issue.<sup>265</sup>

Analyzing the text of 35 U.S.C. § 271(f), the district court's findings concerned the appellate court.<sup>266</sup> To determine what the statute meant, the appellate court looked at the dictionary definition of "portion," which is defined as "a section or quantity within a larger thing; a part of a whole."<sup>267</sup> The court said, "[n]othing in the ordinary meaning of 'portion' suggest that it necessarily requires a certain quantity or that a single component cannot be a 'portion' of a multicomponent invention."<sup>268</sup> "Rather, the ordinary meaning of 'substantial portion' suggests that a single important or essential component can be a 'substantial portion of the components' of a patented invention."<sup>269</sup>

It is clear that the court wrestled with the statute's meaning and whether it was quantitative or qualitative.<sup>270</sup> Life Technologies argued that "components" is plural and not singular, but the court rejected this argument, saying that grammatically the position is inconsistent with the statute.<sup>271</sup>

Next, the court grappled with Life Technologies' second argument, the fact that § 271(f)(1) mentions the word components, as in plural,

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<sup>260</sup> *Id.* at 1345.

<sup>261</sup> *Id.*

<sup>262</sup> *Id.*

<sup>263</sup> *Id.* at 1346.

<sup>264</sup> *Id.*

<sup>265</sup> *Id.*

<sup>266</sup> *Id.* at 1351.

<sup>267</sup> *Id.* at 1353.

<sup>268</sup> *Id.*

<sup>269</sup> *Id.*

<sup>270</sup> *Id.*

<sup>271</sup> *Id.* at 1354.

meanwhile § 271(f)(2) mentions the word component, as in singular.<sup>272</sup> Life Technologies argued that § 271(f)(2) should apply because its singular and that there is a quantitative requirement in § 271(f)(1).<sup>273</sup> The court rejected this argument and held that the “subsections employ the terms in different contexts, and thus the use of ‘component’ in § 271(f)(2) does not control the meaning of ‘components’ in § 271(f)(1).”<sup>274</sup>

The court was firmly set on the meaning of the statute; that a qualitative test should apply and not a quantitative.<sup>275</sup> The court believed that because one component was so vital, that without it the patent fails, and because of that, it must be considered a substantial portion in the ordinary meaning of the word.<sup>276</sup> Therefore, the court was convinced, that under the statute’s meaning it should be a qualitative test. Thus, the infringement of one component of the patent is enough to trigger infringement liability.<sup>277</sup>

### C. Majority

The majority of the Court, led by Justice Sotomayor, detailed the history of the Patent Act of 1952.<sup>278</sup> The reason for this history analysis is to determine what Congress meant when they wrote “all or a substantial portion” and “of the components” in § 271(f)(1).<sup>279</sup> The Court believed that it was important to focus on those words, because it defines the difference between a quantitative test and a qualitative test.<sup>280</sup> The Court’s holding “that a single component does not constitute a substantial portion of the components that can give rise to liability under § 271(f)(1)” is interpreted to be subdivision one read in tandem with subdivision two.<sup>281</sup>

Essentially, the majority based their conclusion on that subdivision one refers to components as plural and subdivision two refers to a

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<sup>272</sup> *Id.*

<sup>273</sup> *Id.*

<sup>274</sup> *Id.* at 1355.

<sup>275</sup> *Id.* at 1356.

<sup>276</sup> *Id.*

<sup>277</sup> *Id.*

<sup>278</sup> *Life Techs. Corp.*, 137 S.Ct. at 738.

<sup>279</sup> *Id.*

<sup>280</sup> *Id.* at 749.

<sup>281</sup> *Id.* at 737; see generally Stuart Rosenberg & Chelsea Thomas, *Supreme Court Rules That Supplying a Single Component of a Patented Invention Does Not Violate 35 U.S.C. Section 271(f)(1)*, GIBSON DUNN (Mar. 22, 2017), <https://www.gibsondunn.com/supreme-court-rules-that-supplying-a-single-component-of-a-patented-invention-does-not-violate-35-u-s-c-section-271f1/>.

singular component.<sup>282</sup> The Court determined that if one did not read the subsections in tandem, the text of the statute would not make sense or have any legal consequence.<sup>283</sup>

The appellate court expressed concern that the component in question was of grave importance.<sup>284</sup> Without this component the patent and product would be unable to function, and thus the patent itself will be frustrated.<sup>285</sup> The difficulty with the Supreme Court's opinion is that the Court does not address this issue. Instead, the Court focused plainly on interpreting the text of the statute and determining whether it is a quantitative or qualitative text.<sup>286</sup>

Although the Court's position makes sense, interpreting the statute as written and then referring to definition of words within the statute, the Court should have looked at the industry definition of the words. In contract law, courts look at the trade definition of words.<sup>287</sup> When looking at a "substantial portion" of the patent, one should take a qualitative look at the component with respect to the patent as a whole. If a patent is unable to function without one of these components, then it is apparent that the one component is vital. If the invention would be unable to function as intended, then that component should be deemed as a "substantial portion" of the patent.

As the appellate court outlined, without Taq polymerase the genetic kit would fall apart and be unable to duplicate DNA.<sup>288</sup> Therefore, this one component, although small, is a vital building block in LifeTech's genetic kit and is indeed a "substantial portion" of the patent.<sup>289</sup>

Thus, it is arguable the Court was wrong to strictly look at the ordinary meaning of the words and not the trade usage. It will lead to a slippery slope of a singular, yet very important component being infringed upon, but not triggering infringer liability.

#### D. Concurrence

The concurring opinion was short and to the point. Justice Alito and Justice Thomas are concerned that the majority is not making a bright line rule rather they are saying what does not qualify under the

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<sup>282</sup> *Life Techs. Corp.*, 137 S. Ct at 742.

<sup>283</sup> *Id.*

<sup>284</sup> *Id.* at 742; *see infra* Section IV(D).

<sup>285</sup> *Life Techs. Corp.*, 137 S.Ct at 742.

<sup>286</sup> *Id.*

<sup>287</sup> See Lisa Bernstein, "Trade Usage in the Courts: The Flawed Conceptual and Evidentiary Basis of Article 2's Incorporation Strategy" (Coase-Sandor Institute for Law & Economics Working Paper No. 669, 2014).

<sup>288</sup> *Life Techs. Corp.*, 137 S.Ct at 742.

<sup>289</sup> *Id.*

statute as interpreted.<sup>290</sup> The Justices note that the majority provides little guidance about what constitutes an infringement based on the components.<sup>291</sup> Although the majority outlines that infringement of one component of a multicomponent patent is not enough, they fail to mention what is enough.<sup>292</sup>

The concurring Justices were worried because the majority's only guidance was the quantitative test.<sup>293</sup> The majority read the text as that a "substantial portion" of the patent components must be infringed to deem the infringer liable, but what is a substantial portion?<sup>294</sup> If the patent contains five components, is a substantial portion two, three, or four components? What number of components must be infringed to cross the threshold into liability? The test should be qualitative rather than quantitative. If there is no bright line rule for how many components of a multicomponent patent need to be infringed before there is liability, then it should fall back on the importance of each individual component or the whole patent.

The concurring Justices finish stating that they "do not read the opinion to suggest that *any* number greater than one is sufficient. [The] opinion establishes that more than one component is necessary but does not address *how much* more."<sup>295</sup> This is crucial and because the Court has not addressed it, which will lead to future confusion about the liability standard for multicomponent patents.

#### IV. LEGAL SIGNIFICANCE AND THE FUTURE

Now that the Supreme Court has reached a decision and reversed the appellate court, one must wonder where they go next? There is a concern that this ruling is going to change the future of patent litigation when it concerns a patent containing multiple components.<sup>296</sup> The Patent Act grants the government power to give limited monopolies to people in exchange for inventors coming forward with their ideas to benefit society as a whole.<sup>297</sup> But because of the Supreme Court ruling, there is the possibility that inventors may not want to be as forthcoming with their inventions and ideas because of a new requirement for patent infringement liability .

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<sup>290</sup> *Id.* at 743.

<sup>291</sup> *Id.*

<sup>292</sup> *Id.*

<sup>293</sup> *Id.*

<sup>294</sup> *Id.*

<sup>295</sup> *Id.*

<sup>296</sup> See Caitlain Devereaux Lewis & Kathryn B. Armstrong, *Patent Law: A Primer and Overview of Emerging Issues*, CONG. RES. SERV. (Sept. 21, 2017), <https://fas.org/sgp/crs/misc/R44962.pdf>.

<sup>297</sup> ADELMAN ET AL., *supra* note 5.

From this case, it is abundantly evident that Congress was unclear in the language in 35 U.S.C. § 271(f)(1) and § 271(f)(2). The district court, appellate court, and Supreme Court all interpreted the statute differently, with the Supreme Court ultimately deciding that the best way to interpret was to use a quantitative test.<sup>298</sup> This is imperative because it makes a huge difference. The question remains, how would previous cases be decided if this ruling was precedential?

Many patents are comprised of multiple components. Patents cover high-technological inventions, machines and equipment. Most of which are going to need to require multiple components to be able to function properly. A smartphone is full of patented components. Whether it is the design, chipset, cameras or even battery—each component is likely to have a patent behind it. Without the chipset of a smartphone, it could not operate.<sup>299</sup> It would be an entirely useless paperweight, as there would be nothing to operate the device.<sup>300</sup> It would not have memory, an operating system, a processor, RAM and more. So, what would happen if only the chipset infringes on a patent? What if the chipset was manufactured in the United States and then sent to China or Europe for assembly? Under the current Supreme Court precedent, that would be perfectly acceptable and invoke zero liability on the infringer.

There is no denying that the chipset is the heart of the smartphone.<sup>301</sup> Without it, a smartphone simply cannot function as a phone, or anything else for that matter.<sup>302</sup> A smartphone would be unable to turn on, and all other components on the device would cease to function.<sup>303</sup> But the Supreme Court does not consider this to be a substantial portion because it is merely a single component.

So, what is the legal significance of the *Life Technologies* ruling? This ruling is going to lead to more scenarios in which a would-be patent infringer would have previously been liable for patent infringement but will no longer face liability. The world is becoming more and more technologically advanced. More and more people are filing for patents, utility patents in general, as they look to protect their

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<sup>298</sup> *Life Techs. Corp.*, 137 S.Ct. at 743.

<sup>299</sup> See MJ Nale, *A crash course in Smartphone Chipset*, PHONLAB, <https://phonlabteachable.com/%E2%80%8Ba-crash-course-in-smartphone-chipset/> (last accessed Mar. 16, 2020).

<sup>300</sup> See also *id.*

<sup>301</sup> *Id.*

<sup>302</sup> See *id.*

<sup>303</sup> *Id.*

inventions.<sup>304</sup> In addition to our technological advancements, the world is becoming more globalized, meaning we have more international trade, competition and manufacturing of products.<sup>305</sup>

As world globalization continues, it is very possible that we will begin manufacturing more components in the United States for assembly in different countries around the world. Based on the holding in *Life Technologies Corp.*, this could very easily become an issue in which manufacturers only manufacture a single component that infringes on a multi-component patent to avoid liability. It does not matter how substantial the component may be to the overall product, as long as it is a single component it will not invoke liability.

Hopefully there will be a case in the near future that will test this dangerous precedent. As mentioned throughout this Article, patents are offered to incentivize people to come forward with their ideas and inventions to help push society as a whole towards the future.<sup>306</sup> This ruling amounts to nothing more than a roadblock to the decades of innovated inventions that have been able to continue to push society forward. The only two possible outcomes are: (1) a slowdown in inventors filing multi-component patents because they that know there are loopholes that will prevent liability upon infringers; or (2) an increase in litigation where the Congress will have to step in and clarify the meaning of 35 U.S.C. § 271(f)(1) and 271(f)(2).

As to all statutes, laws, and Supreme Court decisions, there are supporters and opponents on both sides. Supporters of this new decision will likely point out that it is not that big of a deal, because even in the last eighteen-months since the decision, nothing has drastically changed based on the outcome of this case. However, just because we have not seen a change yet, does not mean a change is not coming in the future. As outlined above, inventors are going to take a more cautious approach when filing for patents or bringing their discoveries and works to the public light. Ultimately, inventors still want to push society forward with the progression of science and the useful arts, but at the same time, it is just as likely they do not want to take undue risks after years and years of hard work.

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<sup>304</sup> See *Number of patents issued in the United States from FY 1999 to FY 2019*, STATISTICA, <https://www.statista.com/statistics/256571/number-of-patent-grants-in-the-us/> (last accessed Mar. 16, 2020).

<sup>305</sup> Mike Collins, *The Pros and Cons of Globalization*, FORBES (Mar. 6, 2015), <https://www.forbes.com/sites/mikecollins/2015/05/06/the-pros-and-cons-of-globalization/#3a99c6bacce>.

<sup>306</sup> See *supra* notes 6 and 115.